

Kentucky's NO_x SIP Call Plan



**prepared &
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1.0

Introduction

1.1 Background

The Kentucky Natural Resources and Environmental Protection Cabinet (now the Kentucky Environmental and Public Protection Cabinet), in order to comply with EPA's NO_x SIP Call, submitted a final NO_x SIP Call State Implementation Plan (SIP) revision to EPA on January 31, 2002. EPA approved Kentucky's NO_x SIP Call SIP revision in an April 11, 2002, *Federal Register*, which became effective on June 10, 2002 [67 FR 17624]. A link to the Cabinet's January 31, 2002, NO_x SIP Call SIP revision can be found at the following Division for Air Quality web site:

<http://www.air.ky.gov/regs/State+Implementation+Plan+Revisions.htm>.

In order to comply with the NO_x reduction required by the NO_x SIP Call, the Cabinet, in consultation with EPA and public comment, adopted six regulations, which became effective on August 15, 2001, and as amended on December 18, 2002. (*Copies of the existing regulations are on the internet at www.lrc.state.ky.us/kar/Title401.htm*). The six regulations are as follows:

- 401 KAR 51:001. Definitions for 401 KAR Chapter 51.
- 401 KAR 51:160. NO_x requirements for large utility and industrial boilers.
- 401 KAR 51:170. NO_x requirements for cement kilns.
- 401 KAR 51:180. NO_x credits for early reduction and emergency.
- 401 KAR 51:190. Banking and trading NO_x allowances.
- 401 KAR 51:195. NO_x opt-in provisions.

1.2 Revision to Kentucky's NO_x SIP Call Plan

In order to comply with the NO_x reduction required by the NO_x SIP Call, the Environmental and Public Protection Cabinet hereby submits a SIP revision regarding EPA's NO_x SIP Call. This revision to Kentucky's SIP addresses the following issues regarding Kentucky's NO_x SIP Call Plan:

- The adoption of a new regulation to require a 82% NO_x emission reduction from large stationary internal combustion engines (ICEs) as required by EPA's Phase II NO_x SIP Call final rule published in the *Federal Register* on April 21, 2004, and entitled "*Interstate Ozone Transport: Response to Court Decisions on the NO_x SIP Call, NO_x SIP Call Technical Amendments, and Section 126 Rules*" [69 FR 21603]. The application of controls on identified ICEs will result in a revision to the large stationary ICE portion of the Non-EGU budget.
- Amendment of an existing regulation to address EPA's position related in a January 23, 2004, letter that it was optional for fluidized catalytic cracking units (FCCU) CO boilers to be subject to the NO_x SIP Call. As a result of EPA's position, Kentucky's large boilers/turbines portion of the Non-EGU (non electric generating unit) NO_x trading

budget will be revised by removing and exempting FCCU CO boilers from the NO_x SIP Call; and

- An update to SIP language to reflect the December 18, 2002, amendment to 401 KAR 51:160 that provides for the selling of a percentage of EGU NO_x allocations by the Commonwealth of Kentucky beginning with the 2004-2006 allocation period and thereafter allocation periods.

1.2.1 Phase II NO_x SIP Call Regarding Large ICEs

Pursuant to EPA's April 21, 2004, final rule regarding Phase II of the NO_x SIP Call that requires states that submitted SIPs to meet the Phase I NO_x SIP Call budgets to submit Phase II SIP revisions as needed to achieve the necessary reductions of NO_x, the Kentucky Environmental and Public Protection Cabinet, in consultation with EPA adopted the following regulation:

401 KAR 51:150. NO_x requirements for stationary internal combustion engines.
(See Appendix A for copies of the regulations)

The regulation (401 KAR 51:150) was adopted to require large stationary internal combustion engines (ICEs) (engines emitting > 1 ton of NO_x per average ozone season day in 1997) to reduce NO_x emissions by 82%.

1.2.2 Exempt FCCU CO Boilers from Being Subject to the NO_x SIP Call

Pursuant to EPA's January 23, 2004, position that it is optional for FCCU CO boilers to be subject to the NO_x SIP Call, the Kentucky Environmental and Public Protection Cabinet, in consultation with EPA amended the following regulation:

401 KAR 51:160. NO_x requirements for large utility and industrial boilers.
(See Appendix A for copies of the regulations)

In addition to electric generating units (EGUs), 401 KAR 51:160 regulates emissions from large industrial boilers or turbines which have a maximum design heat input equal to or greater than two hundred fifty (250) MMBTU per hour that are not electric generating units. For purposes of this plan, these units are referred to as Non-EGUs.

The amendment to 401 KAR 51:160 exempts FCCU CO boilers from being subject to Kentucky's NO_x SIP Call requirements. As a result, the large Non-EGU trading budget is being revised in this SIP revision. The revised Non-EGU trading budget will be utilized to provide the Non-EGU NO_x allocations for the 2007-2008 allocation period.

1.2.3 Update SIP to Reflect the Selling of a Portion of EGU NO_x Allocations

On December 18, 2002, the Cabinet amended 401 KAR 51:160. An amendment provided that the Commonwealth of Kentucky can sell a certain percentage of EGU NO_x allocations for allocation periods beginning with the 2004-2006 allocation period and thereafter allocation periods. As a result of this regulatory amendment, Kentucky is updating the narrative of the

NOx SIP Call Plan to reflect this regulatory change (*See Appendix A for copies of the regulations*).

1.3 Kentucky's Projected 2007 Control Period NOx Emissions (Ozone SeasonTons)

The combination of 401 KAR 51:150, 51:160, and 401 KAR 51:170 achieves all the necessary NOx reductions for Kentucky as mandated by EPA's NOx SIP Call. In light of the reductions achieved, the projected 2007 control period NOx emissions for the various categories are as follows:

Total EGU NOx Budget	36,504
Total Non-EGU NOx Budget (<i>Revised</i>)	26,259
Total NOx Budget for Stationary Area Sources	31,807
Total NOx Budget for Nonroad Mobile Sources	15,025
Total NOx Budget for Highway Mobile Sources	<u>53,268</u>
Total NOx Budget for Kentucky (<i>Revised</i>)	162,863

The following plan provides details on how Kentucky proposes to meet the Phase II requirements of EPA's NOx SIP Call for large stationary internal combustion engines (ICEs), to exempt FCCU CO boilers from being subject to the NOx SIP Call per EPA's January 23, 2004, position, and to update SIP language to reflect that Kentucky sells a percentage of its EGU NOx allocations as provided in 401 KAR 51:160 as amended on December 18, 2002. Additionally, an electronic version of this plan and relevant attachments can be found on the Division for Air Quality's web site at:

<http://www.air.ky.gov/regs/State+Implementation+Plan+Revisions.htm>.

2.0

Kentucky's NOx Budget

2.1 Non-EGU NOx Budget

Appendix B contains the revised Non-EGU budget for Kentucky. The revised Non-EGU budget reflects the application of 82% controls on large stationary internal combustion engines (ICEs) per EPA's April 21, 2004, NOx SIP Call Phase II final rule, and the removal and exemption of FCCU CO boilers from being subject to the NOx SIP Call per EPA's January 23, 2004, position. The total Non-EGU budget for Kentucky is twenty-six thousand two hundred fifty-nine (26,259) tons revised from the January 31, 2002, submitted budget of twenty-eight thousand seven hundred fifty (28,750) tons. This budget consists of the following categories: large Non-EGUs in the trading program, small Non-EGUs not in the trading program, large cement kilns, and large ICEs. The budget for large Non-EGUs in the trading program (controlled sources) is sixty-four (64) tons revised from January 31, 2002, submitted budget of one hundred seventy-nine (179) tons due to the removal and exemption of FCCU CO boilers due to EPA's January 23, 2004, position. The budget for small Non-EGUs not in the trading program (uncontrolled sources) is twenty-four thousand five hundred twenty-seven (24,527) tons revised from the January 31, 2002, submitted budget of twenty-four thousand three hundred ninety-seven (24,397) tons. The budget for large cement kilns, which are not part of the trading program, but are controlled at 30% of their uncontrolled levels, remains unchanged at one thousand ninety-one (1,091) tons. The final component of the Non-EGU budget is the budget for large stationary ICEs. The budget for large ICEs, which are not part of the trading program, but are to be controlled at 82% of their uncontrolled levels, is five hundred seventy-seven (577) tons revised from the January 31, 2002, submitted uncontrolled budget of three thousand eighty-three (3,083) tons. The Cabinet adopted 401 KAR 51:150 to require NOx reductions for large stationary ICEs per EPA's April 21, 2004, final rule regarding Phase II of the NOx SIP Call.

The Cabinet's revised Non-EGU budget reflects EPA's April 21, 2004, final rule regarding Phase II NOx SIP Call reductions for large stationary internal combustion engines (ICEs), and the removal and exemption of FCCU CO boilers from the NOx SIP Call per EPA's January 23, 2004, position. On February 22, 1999, Kentucky provided to EPA 1997 NOx emissions for ICEs (SIC code 4922) instead of 1995 data since the Division's 1997 data was much more comprehensive. Therefore, the Division has utilized its 1997 emissions for all applicable natural gas transmission stations (SIC code 4922) in lieu of EPA's NOx SIP Call emissions. Changes to the Non-EGU NOx SIP Call budget are provided below (*See Appendix B*).

Total Non-EGU Budget (Revised)	26,259 tons
Total budget for large Non-EGUs in the trading program (Revised)	64 tons
Total budget for small Non-EGUs not in the trading program (Revised)	24,527 tons
Total budget for large cement kilns	1,091 tons
Total budget for large ICEs (Revised)	577 tons

2.1.1 Exempt FCCU CO Boilers from Being Subject to the NO_x SIP Call

(See Appendix B for Non-EGU documentation)

In a January 23, 2004, letter EPA related to Kentucky its position that it was optional for FCCU CO boilers to be subject to the NO_x SIP Call *(See Appendix B for Non-EGU documentation)*. Pursuant to EPA's January 23, 2004, position, Kentucky's amendment to 401 KAR 51:160 will exempt FCCU CO boilers from being subject to Kentucky's NO_x SIP Call requirements *(See Appendix A for copies of the regulations)*. As a result, the large Non-EGU trading budget is being revised in this SIP revision by moving Marathon Ashland Petroleum's (MAP – ID# 21-019-00004) three (3) FCCU CO boilers (Units 64 and 8C North and South) to the small Non-EGU non trading portion of the NO_x SIP Call budget. Per EPA's January 23, 2004, letter, NO_x trading allowances currently allocated to MAP's FCCU CO boilers (Units 64 and 8C North and South) for each year during 2004-2006 are to be removed, and leave unchanged the existing allocations for the remaining Non-EGUs for 2004-2006. In addition, the revised large Non-EGU trading budget (64 ozone season tons) will be utilized to provide the Non-EGU NO_x allocations for the 2007-2008 allocation period.

2.1.2 Large Stationary Internal Combustion Engines (ICE)

On April 21, 2004, the United States Environmental Protection Agency (EPA) published a final rule entitled, *"Interstate Ozone Transport: Response to Court Decisions on the NO_x SIP Call, NO_x SIP Call Technical Amendments, and Section 126 Rules"* [69 FR 21603]. The rule requires states that submitted plans to meet the Phase I NO_x SIP Call budgets to submit Phase II SIP revisions as needed to achieve the necessary incremental reductions of NO_x.

In order to comply with EPA's April 21, 2004, Phase II final rule, 401 KAR 51:150 was adopted to require large stationary internal combustion engines (ICEs) (engines emitting > 1 ton of NO_x per average ozone season day in 1997) to reduce NO_x emissions by 82%. As a result, the non trading budget for large stationary internal combustion engines (ICEs) is being revised in this SIP revision from three thousand eighty-three (3,083) uncontrolled ozone season tons to five hundred seventy-seven (577) controlled ozone season tons.

Per a July 12, 2005, conference call with EPA, the revised large ICE budget has been recalculated by:

- Utilizing the 1997 emissions for the list of large ICEs identified by the Kentucky Division for Air Quality and submitted to EPA in Kentucky's February 22, 1999, comments on EPA's NO_x SIP Call; and
- Applying a prorated 1995 to 2007 growth factor to provide a 1997 to 2007 growth factor to grow 1997 ICE NO_x emissions to 2007. On February 22, 1999, Kentucky provided to EPA 1997 NO_x emissions for ICEs instead of 1995 data since the Division's 1997 data was much more comprehensive. At that time the inventory contained ICEs that were missing from previous inventory years. As reflected in the January 31, 2002, SIP revision *(See Appendix B)*, EPA replaced Kentucky's 1997 emissions for three ANR

Pipeline large units (107-0134 units 02 1, 02 2, and 03 1) with 1995 data reclassifying one ICE (02 (707) 2) as small and identifying a Jefferson County ICE (111 0223 001-2) as a large ICE. Given these and other inventory differences and based on a July 12, 2005, consultation with EPA, the Division is utilizing the list of large ICEs and the 1997 emissions that the Division originally provided to EPA on February 22, 1999 (*See Appendix B for Non-EGU documentation*). In addition, based on information obtained from the Louisville-Metro Air Pollution Control District, the Jefferson County unit (111 0223 001-2) was not large based on 1995 or 1997 data. The Jefferson County ICE in question is actually comprised of nine separate small ICE engines none of which are > 1 ton of NO_x per average ozone season per day (*See Appendix B*). 1997 emissions data for the nine Jefferson County ICEs obtained from the District has been utilized and reflected in Appendix B. As previously indicated in consultation with EPA, all Division and updated Jefferson County 1997 ICE emissions (SIC 4922) in Kentucky's Non-EGU NO_x SIP Call inventory were grown to 2007 using a 1997 to 2007 growth factor that was determined based on prorating EPA's 1995 to 2007 growth factor (*See Appendix B*).

The Cabinet reserves the right to make changes to the budget for the large ICE category in the event that it is determined that this budget needs further revision.

3.0 NO_x Allocations for Kentucky's EGUs and Non-EGUs

3.1 EGU NO_x Allocations

3.1.1 Portion of EGU NO_x Allocations to Be Sold

Pursuant to an amendment to 401 KAR 51:160 on December 18, 2002, five (5) percent of the EGU NO_x allocations for the 2004-2006 allocation period were sold by the Commonwealth of Kentucky and two (2) percent of the EGU NO_x allocations for the 2007-2008 allocation period will be sold by the Commonwealth of Kentucky with proceeds deposited in Kentucky's General Fund.

3.2 Non-EGU NO_x Allocations

Pursuant to the exemption and removal of the FCCU CO boilers from Kentucky's NO_x SIP Call requirements, Kentucky Non-EGU NO_x allocations for the 2007-2008 allocation period will be determined utilizing the revised Non-EGU trading budget (64 ozone season tons) provided in this SIP revision. Kentucky Non-EGU 2007-2008 NO_x allocations that utilize the revised Non-EGU trading budget (64 ozone season tons) are included in Appendix C. In addition, the Non-EGU NO_x allocations for 2007-2008 are available at the following Division for Air Quality web link:

[http://www.air.ky.gov/news/Kentucky+2007-2008+NO_x+Allocations.htm](http://www.air.ky.gov/news/Kentucky+2007-2008+NOx+Allocations.htm).

4.0 Kentucky's Legal Authority

Kentucky's statutory authority for promulgation of the Division for Air Quality's regulations pertaining to the NO_x SIP Call is as follows:

4.1 Legal Authority

KRS 224.10-100, 224.20-100, 224.20-110, 224-20-120, 40 CFR 51.121 as amended at 65 FR 11222 (March 2, 2000), 51.122, 72.2, 75.1, 75.2, 75.4, 75.11 to 75.13, 75.17, 75.19, 75.20, 75.24, 75.70, 75.72, 75.74, 75.75, Part 96, and 42 USC 7410.

4.2 Kentucky's NO_x SIP Call Regulations

Regulations to be Adopted and/or Amended per this SIP revision:

- 401 KAR 51:150. NO_x requirements for stationary internal combustion engines.
(*Proposed Regulation Became Final on February 3, 2006*).
- 401 KAR 51:160. NO_x requirements for large utility and industrial boilers.
(*Proposed Amendment Became Final on February 3, 2006*).

See Appendix A for copies of the final regulations. They are also available at the following Division for Air Quality web site:

<http://www.air.ky.gov/regs/State+Implementation+Plan+Revisions.htm>.

For copies of other Kentucky NO_x SIP Call regulations, please see the following internet link at www.lrc.state.ky.us/Title401.htm.

5.0

Public Participation

A public hearing to receive comments on proposed revisions to Kentucky's State Implementation Plan (SIP) and Air Quality Regulations that address the federal NO_x SIP Call was conducted on October 21, 2005. A copy of the public hearing notice regarding this SIP revision concerning the NO_x SIP Call is included in Appendix D and located on the Division for Air Quality's web site listed below. Responses to comments received during the public comment period are included in Appendix D and at the following web site.

<http://www.air.ky.gov/regs/State+Implementation+Plan+Revisions.htm>.